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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,033	07/05/2000	Noriki Tachibana	00491/HG	4239

1933 7590 12/19/2002

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EXAMINER

AHMED, SHEEBA

ART UNIT	PAPER NUMBER
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1773

7

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/610,033	TACHIBANA ET AL.	
	Examiner	Art Unit	
	Sheeba Ahmed	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 03 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in Paper No.6 is acknowledged. However, upon further consideration the Restriction Requirement set forth in Paper No. 5, mailed on September 16, 2002 is withdrawn. A new restriction requirement is set forth below. Any inconvenience to the Applicants is regretted.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-14, drawn to a cellulose ester film, a polarizer comprising the cellulose ester film and a liquid crystal display comprising the cellulose ester film, classified in class 428, subclass 1.1 and 323+.
- II. Claims 15 and 16, drawn to a method of preparing a cellulose ester film, classified in class 427, subclass 532+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the cellulose ester film can be made by a different method, i.e., extrusion.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Marshall Chick on December 10, 2002, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15 and 16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

3. Claims 5-7 are objected to because of the following informalities:

Claim 5, lines 5-7 recite that "the particles having aspect ratio of 2 to 7 is contained not less than 5 wt.% of whole particles having average diameter of 0.2 to 10 μm ". The above-recited language is awkward and the Examiner *recommends* amending the term "whole" to "all" to clarify the language of claim 5.

Claim 6 is missing a period at the end of the claim.

Claim 7 states that "at least one side of a dynamic friction coefficient of the cellulose ester film is 0.3 to 1.5". The above-recited language is awkward and the Examiner *recommends* amending the above phrase to "at least one side of the cellulose ester film has a dynamic friction coefficient of 0.3 to 1.5" to clarify the language of claim 7.

Appropriate clarification or correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4, 6-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Turner (US 4,861,803).

Turner discloses organic polymers, also referred to as bulk polymers, containing dispersed reinforcing fillers (Column 1, lines 11-13 and 65-66). The filler material is dispersed in the bulk polymer and is a plurality of elongated particles having an average length (***corresponding to the average particle diameter of the claimed invention; claim 2***) of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 (Column 2, lines 12-26). The bulk polymer may be a thermoplastic or a thermoset and examples include cellulose such as cellulose acetate (***corresponding to the cellulose ester of the claimed invention***) (Column 4,

Art Unit: 1773

lines 9-11 and 31-32). Example 1, section C illustrates that the reinforced polymer composition may be used to form a film. The polymeric filler-reinforced films disclosed by Turner exhibit very substantial improvements in physical properties, particularly tensile properties, and can be achieved at low loadings of the filler material (Column 2, lines 4-8).

Turner teaches that the bulk polymer used to form the filler-reinforced film may be selected from the list given in Column 4.

Accordingly, it would have been obvious to one having ordinary skill in the art to select cellulose acetate as the bulk polymer from the list given in Column 4, lines 9-44 given that Turner teaches that these bulk polymers are equivalents of each other and any one may be reinforced with the elongated particles having the average length of less than 10 microns and an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4. With regards to the limitations that the cellulose ester film has a haze of not more than 0.6% (when the thickness is 80 microns), a dynamic friction coefficient of 0.3 to 1.5, and a tear strength of 18g or more (when the thickness is 80 microns), the Examiner takes the position that such material property limitations must be met by the filler-reinforced cellulose acetate film taught by Turner given that the chemical composition and the structure of the film taught by Turner and that of the claimed invention are identical.

5. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michihata et al. (US 6,320,042 B1) in view of Turner (US 4,861,803).

Michihata et al. disclose a protective film for a polarizing plate, which is employed in a liquid crystal display and particularly to a cellulose triacetate film, which is suitable for such a protective film (Column 1, lines 6-9). The polarizing plate has a structure wherein a polarizing film (***corresponding to the polarizing element of the claim 13***) is laminated on both sides with transparent resin layers. Frequently employed as said transparent resin layer is a protective film comprised of cellulose triacetate film (***hence meeting the limitation that the polarizing plate comprises a first and a second protective film***) (Column 1, lines 16-22). The protective film has an absolute retardation value in plane (R_o) of not more than 30nm (***thus meeting the limitations of claim 12***) (Column 2, lines 24-26). The content ratio of the cellulose triacetate film is preferably at least 70%, and more preferably at least 90% (***thus meeting the limitation that the cellulose ester film contains 50 weight % or more of a lower fatty acid ester of cellulose as recited in claim 9; in this case the lower fatty acid ester is the triacetate***) (Column 5, lines 16-22). The cellulose triacetate film may comprise additives such as UV absorbers (Column 8, lines 11-13) or fine particles such as inorganic materials or organic compounds in an amount between 0.005 to 0.5% by weight (Column 9, lines 48-67 and Column 10, lines 1-4).

Michihata et al. do not teach that their cellulose triacetate protective film comprises particles having an aspect ratio of 2 to 7.

However, Turner discloses organic polymers, also referred to as bulk polymers, containing dispersed reinforcing fillers (Column 1, lines 11-13 and 65-66). The filler

Art Unit: 1773

material is dispersed in the bulk polymer and is a plurality of elongated particles having an average length (*corresponding to the average particle diameter of the claimed invention; claim 2*) of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 (Column 2, lines 12-26). The bulk polymer may be a thermoplastic or a thermoset and examples include cellulose such as cellulose acetate (*corresponding to the cellulose ester of the claimed invention*) (Column 4, lines 9-11 and 31-32). Example 1, section C illustrates that the reinforced polymer composition may be used to form a film. The polymeric filler-reinforced films disclosed by Turner exhibit very substantial improvements in physical properties, particularly tensile properties, and can be achieved at low loadings of the filler material (Column 2, lines 4-8).

Accordingly, it would have been obvious to one having ordinary skill in the art to add particles having an aspect ratio of 2 to 7 to the cellulose triacetate protective film disclosed by Michihata et al. given that Turner specifically teaches that a plurality of elongated particles having an average length of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 may be added to cellulose such as cellulose acetate and that such a filler provides very substantial improvements in physical properties, particularly tensile properties, and that these improvements can be achieved at low loadings of the filler material.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turner (US 4,861,803) in view of Beck et al. (US 5,554,287).

Art Unit: 1773

Turner discloses organic polymers, also referred to as bulk polymers, containing dispersed reinforcing fillers (Column 1, lines 11-13 and 65-66). The filler material is dispersed in the bulk polymer and is a plurality of elongated particles having an average length of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 (Column 2, lines 12-26). The bulk polymer may be a thermoplastic or a thermoset and examples include cellulose acetate (*corresponding to the cellulose ester of the claimed invention*) (Column 4, lines 9-11 and 31-32). Example 1, section C illustrates that the reinforced polymer composition may be used to form a film.

Turner does not teach that the cellulose ester film may further comprise particles having an average particle diameter of 0.2 to 10 microns such that the amount of the particles having the aspect ratio of 2 to 7 is not less than 5 weight % of the total amount of particles having the particle size between 0.2 to 10 microns.

However, Beck et al. disclose a filter material comprising cellulose as a matrix material and comprising cellulose acetate additives embedded therein (Column 1, lines 22-26) and wherein the additives may be microcrystalline cellulose particles of a size smaller than 10 microns and can be used in a share from 5 to 50 weight %. The advantage of using microcrystalline cellulose is that it has a low cost and exerts a homogenizing effect so that expansive homogenizing operation become unnecessary (Column 5, lines 8-23).

Accordingly, it would have been obvious to one having ordinary skill in the art to replace a portion of the elongated particles in the cellulose acetate film as taught by

Art Unit: 1773

Turner with 5 to 50 weight % of microcrystalline cellulose particles of a size smaller than 10 microns (*and thus meeting the limitation that the amount of the particles having the aspect ratio of 2 to 7 is not less than 5 weight % of the total amount of particles having the particle size between 0.2 to 10 microns*) given that Beck et al. specifically teach that such particles have a low cost and exert a homogenizing effect so that expansive homogenizing operation become unnecessary.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (US 5,680,184) in view of Turner (US 4,861,803).

Nishino discloses a color liquid crystal display device comprising a pair of polarizing plates arranged on both sides a liquid crystal cell (See Title, Abstract and claim 25). A color adjusting optical element (*corresponding to the polarizing plate*) is stacked on a liquid crystal cell and the polymer liquid crystal molecules are sandwiched between protective films consisting of cellulose triacetate (TAC) (Column 23, lines 31-37).

Nishino et al. do not teach that their cellulose triacetate (TAC) protective films comprise particles having an aspect ratio of 2 to 7.

However, Turner discloses organic polymers, also referred to as bulk polymers, containing dispersed reinforcing fillers (Column 1, lines 11-13 and 65-66). The filler material is dispersed in the bulk polymer and is a plurality of elongated particles having an average length of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 (Column 2, lines 12-26). The bulk polymer

Art Unit: 1773

may be a thermoplastic or a thermoset and examples include cellulose acetate **(corresponding to the cellulose ester of the claimed invention)** (Column 4, lines 9-11 and 31-32). Example 1, section C illustrates that the reinforced polymer composition may be used to form a film. The polymeric filler-reinforced films disclosed by Turner exhibit very substantial improvements in physical properties, particularly tensile properties, and can be achieved at low loadings of the filler material (Column 2, lines 4-8).

Accordingly, it would have been obvious to one having ordinary skill in the art to add particles having an aspect ratio of 2 to 7 to the cellulose triacetate protective film disclosed by Nishino given that Turner specifically teaches that a plurality of elongated particles having an average length of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 may be added to cellulose acetate and that such a filler provides very substantial improvements in physical properties, particularly tensile properties, and that these improvements can be achieved at low loadings of the filler material.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turner (US 4,861,803) in view of Kurz et al. (US 6,106,926).

Turner discloses organic polymers, also referred to as bulk polymers, containing dispersed reinforcing fillers (Column 1, lines 11-13 and 65-66). The filler material is dispersed in the bulk polymer and is a plurality of elongated particles having an average length **(corresponding to the average particle diameter of the claimed invention;**

Art Unit: 1773

claim 2) of less than 10 microns and having an aspect ratio of greater than 1 and preferably greater than 2.4, 4, or 6.4 (Column 2, lines 12-26). The bulk polymer may be a thermoplastic or a thermoset and examples include cellulose acetate (**corresponding to the cellulose ester of the claimed invention**) (Column 4, lines 9-11 and 31-32). Example 1, section C illustrates that the reinforced polymer composition may be used to form a film. The polymeric filler-reinforced films disclosed by Turner exhibit very substantial improvements in physical properties, particularly tensile properties, and can be achieved at low loadings of the filler material (Column 2, lines 4-8).

Turner does not disclose that the particles having an aspect ratio of 2 to 7 and average particle size of 0.2 to 10 microns are secondary particles of primary particles having an average particle diameter of not more than 0.2 microns.

However, Kurz et al. disclose a thermoplastic raw material and a film produced there from which comprises particulate material (1) having an average particle diameter of 0.5 or less (**thus meeting the limitation that the average particle diameter is 0.2 to 10 microns**) (Column 1, lines 6-12 and Column 2, lines 43-46). The particulate material may be spherical or non-spherical and is preferably secondary particles obtained by agglomeration wherein the primary particles have diameters in the range of 0.04 to 0.05 microns (**thus meeting the limitation that the particle diameter of the primary particles is not more than 0.2 microns**) and the secondary particles have diameters of less than 0.5 microns. In this case non-spherical particles are particles having aspect ratios greater than 1.2 (**thus meeting the limitation that the aspect**

Art Unit: 1773

ratio is 2 to 7) (Column 3, lines 50-67 and Column 4, lines 1-25). Any type of thermoplastic can be used as the raw material and the film (Column 4, lines 51-53). Kurz et al. have found that films according to their invention have a haze of less than or equal to 4% (Column 3, lines 54-57).

Accordingly, it would have been obvious to one having ordinary skill in the art to replace the particles disclosed by Turner with particles that are secondary particles of primary particles having an average particle diameter of not more than 0.2 microns given that Kurz et al. specifically teach that films comprising particles that are secondary particles of primary particles having an average particle diameter of not more than 0.2 microns have a haze of less than or equal to 4%.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (703)305-0594. The examiner can normally be reached on Mondays and Thursdays from 8am to 6pm .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703)308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-5408 for regular communications and (703)305-3599 for After Final communications.

Art Unit: 1773

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-5665.



Sheeba Ahmed
Technology Center 1700
Art Unit 1773

December 15, 2002